ABSTRACT OF THE DISCLOSURE

A look-up table (LUT)-based arbitration (LTA) system and methodology for use in a network switch element. Input control signals generated by ingress and egress entities associated with a cross-connect matrix of the network switch element are encoded into address information that is used for interrogating a storage structure. Pre-computed arbitration results based on a select arbiter scheme are stored into fields associated with the storage structure. When a particular input combination is applied with respect to an arbitration iteration, a selected arbitration result is obtained by querying the appropriate field, which is then decoded into a corresponding selected entity for the arbitration iteration.